UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,322	03/29/2004	Chirag Deepak Dalal	VRT0125US	2702

60429   7590   01/10/2008
CAMPBELL STEPHENSON LLP
11401 CENTURY OAKS TERRACE
BLDG. H, SUITE 250
AUSTIN, TX 78758

EXAMINER
VO, THANH DUC

ART UNIT	PAPER NUMBER
2189	

MAIL DATE	DELIVERY MODE
01/10/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/812,322	DALAL ET AL.
	Examiner	**Art Unit**
	Thanh D. Vo	2189

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>01 October 2007</u>.

2a) ☒ This action is **FINAL.**   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-27</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-27</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This Office Action is responsive to the Amendment filed on October 1, 2007.

Claims 1-27 are presented for examination. Claims 1-27 are pending.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   Claims 13-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As per claims 13 and 18, the system as being claim "can be implemented, individually and/or collectively, by a wide range of hardware, software, firmware, or any combination thereof" (Paragraph [0064]). Therefore, the means and modules of claims 13 and 18 can be software *per se* (see paragraphs [0064] and [0065]) and is directed to a non-statutory subject matter.

Applicant has amended claims 13 and 18 to include a processor to perform the functions being claim in claims 13 and 18, however, the Specification of the current invention does not disclose nor define a processor as being in claim 13 and 18. Therefore, adding a "processor" into claims 13 and 18 does not obviate the claims from directing to a non-statutory subject matter.

All dependent claims are rejected as having the same deficiencies as the claims

they depend from. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the written description requirement. The claim(s) contains subject matter

which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention.

As per claims 13 and 18, the specification of the current invention does not

disclose or suggest the following limitation:

a processor, coupled to control and configured to perform the functions of the

first determining, searching and second determining means.

All dependent claims are rejected as having the same deficiencies as the claims

they depend from. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3.   Claims 1-9 and 13-28 are rejected under 35 U.S.C. 102(a) as being unpatentable

by Soejima et al. (2003/0074528).

As per claims 1, 13, 18, and 23, Soejima et al. disclosed a system or method

comprising:

determining a first specification for a first set of storage regions (page 2, par.

[0018], *wherein a set can be one or more and storage regions are equivalent to memory*

cells and has to be determined before a request is sent), wherein the first set of storage

regions is needed to perform an operation on a logical volume (page 2, par. [0017],

wherein the operation is to create a logical volume from the storage regions of storage

devices), and the first set of storage regions satisfies an intent of the logical volume,

wherein the intent comprises an intended configuration for implementing the logical

volume, and a rule is a portion of the intent associated with the logical volume (page 2,

par. [0019], *wherein the availability of storage regions met the requirement to create the*

logical volume; wherein the intent/requirement comprises intended configuration such

as average performance and storage capacity, and storage capacity is equivalent to a

rule which is the portion of the intent/requirement);

searching a plurality of existing storage regions for a corresponding storage

region for each storage region in the first set of storage regions (page 2, par. 0022, lines

1-6, and par. 0024, wherein the storage devices comprises of a plurality of storage

regions (memory cells) that are needed to create a logical volume with a corresponding

number of memory cells or storage regions); and

if no existing storage region is found corresponding to a first storage region in the

first set of storage regions, determining a second specification for a second set of

storage regions. *See Fig. 4, step 4007 and Fig. 6, steps 6002-6006, wherein an*

alternate plan is executed if the specification was not satisfied in Fig. 4, step 4007 and a

new specification is set in Fig. 6 to determine if there are other storage regions that

satisfied the new specification. See corresponding figure descriptions in specification

for further clarification.

As per claims 2, 19, and 24, Soejima et al. disclosed a method, wherein the

second set of storage regions comprises at least the first storage region (*see Fig. 6, if*

there is not enough of unoccupied area satisfying the first requested capacity and

access time (first specification) then it will search using an alternate plan (second

specification). The method of looking for unoccupied area using a second specification

shows that the second set of storage regions also comprises partial region of the first

storage region that satisfies the first specification, see Fig. 9, 10, 11a-b, since the

second set of storage regions is a combination of first and second specifications to

search for available storage area.

As per claims 3, 20, and 25, Soejima et al. disclosed a method, wherein the

second specification for the second set of storage regions comprises an attribute of the

first storage region (See Fig. 9-10, the attribute such as access time and

demand/second are common/shared between the first and second storage regions),

and a connection between the first storage region and a storage object in the logical

volume *is an inherent feature of Soejima et al. since it is required in storage system to*

have a connection/pointer indicating which storage region in a logical volume where the

storage object is being stored at in order to retrieve or delete the data whenever it is

required.

As per claims 4 and 14, Soejima et al. disclosed a method further comprising:

using the second specification to acquire a third set of storage regions. See Fig.7

As per claims 5 and 15, Soejima et al. disclosed a method, wherein the third set

of storage regions is a subset of the second set of storage regions. Claims 5 and 15

are rejected under the same rationale as claims 2, 19, and 24 since searching for

another unoccupied storage region as disclosed in Fig. 9-10 and Fig. 11a-b is a process

of searching for remainder of unoccupied area wherein the remainder of the unoccupied

area is a subset of the previously selected area.

As per claims 6, 16, 21, and 26, Soejima et al. disclosed a method further

comprising:

acquiring the second set of storage regions (page 3, paragraph 0041, lines 1-12);

and

performing the operation on the logical volume using the second set of storage

regions. *See Fig. 3 and corresponding figure description in specification regarding*

operation of creating the logical volume.

As per claim 7, Soejima et al. disclosed a method, wherein the second set of

storage regions satisfies the intent of the logical volume (page 2, par. [0019]).

As per claims 8, 17, 22, and 27, Soejima et al. disclosed a method further

comprising:

determining a third specification (page 2, paragraph 0023), where in the

determining the third specification comprises specifying an existing storage region of the

plurality of existing storage regions to reserve for performing the operation (page 2,

paragraph 0024).

As per claim 9, Soejima et al. disclosed the second set of storage regions

excludes a second storage region in plurality of existing storage regions. See Fig.

11(a), wherein parity group 1 (comprising storage regions) does not include the physical

disks (comprising storage regions) that are in parity group 2. .

As per claim 28, Soejima et al. disclosed a computer system comprising:

a processor (Fig. 2); and

the computer-readable medium of claim 25 (see claim 25 rejection in respect to
Soejima et al.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Soejima et al. (2003/0074528) in view of Applicant Admitted Prior Art (hereinafter

AAPA).

As per claims 10, 11, and 12, Soejima et al. did not explicitly disclosed a method

wherein the operation comprises increasing a size of the logical volume, evacuating

data from the logical volume, or relocating data of the logical volume.

However, AAPA disclosed the operation such as increasing the size of a logical

volume, evacuating data from the logical volume, or moving a logical volume to a

different physical location. See page 2, paragraph 0004, lines 5-7 of the Specification of

AAPA. It would have been obvious to one having an ordinary skill in the art at the time

of the Applicant's invention to realize that it is advantageous to apply the invention of

Soejima et al. into said operations since the system will operate automatically without

requiring a storage administrator to keep track of how particular volumes are

implemented and enable the intent of a logical volume to be consistently maintained

while avoiding common errors that might caused by the administrator.

RESPONSE TO ARGUMENT

5.   Applicant's arguments with respect to claims 1-27 have been considered but are

moot in view of the new ground(s) of rejection necessitated by Applicant's amendment.

In response to arguments filed on October 1, 2007, Applicant argued on pages

11-16 that Soejima fails to teach or suggest following:

(a) a specification of a set of needed storage regions (page 11)

(b) the storage regions are needed to perform an operation on a logical volume

(page 11)

(c) an intent of the logical volume (the end of page 12-13)

(d) determining a first specification for a first set of needed storage regions (page

13)

With respect to (a):

In paragraph [0018], Soejima discloses a volume management method includes

a step of receiving a request to create a logical volume over plurality of physical storage

devices (paragraph 0017). It's noted that physical storage devices inherently comprises

of plurality of storage regions and a set can be one or more items in a set.

With respect to (b):

In paragraph [0017], Soejima discloses a volume management method that

creates a logical volume over the physical storage devices, wherein the operation is to

create a logical volume from the storage regions of storage devices. Therefore,

Soejima clearly discloses the storage regions needed to perform an operation on a

logical volume.

With respect to (c):

As further emphasized in the 35 USC 102 rejections presented above, the intent of a logical volume is a specification requirement that is needed to perform logical volume creating from a plurality of physical devices such as performance average and storage capacity.

With respect to (d):

The method of determining a first specification for a first set of needed storage regions is readily apparent as well as an inherent feature of Soejima. In order for the system to request a creation of logical volume from a plurality of physical devices there has to have method of determining the specification such as average performance, storage capacity, and volume size so that the logical volume will meet the intended uses.

With respect to arguments on pages 12 and 15, Applicant appears to understood or interpreted the prior art differently than the Examiner. Explanations are provided in the rejections above to further clarify and re-enforce the rejections made.

Conclusion

6. . Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh D. Vo whose telephone number is (571) 272-0708. The examiner can normally be reached on M-F 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald G. Bragdon can be reached on (571) 272-4204. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thanh D. Vo
Patent Examiner
AU 2189
01/02/2008

ALFORD KINDRED
SUPERVISORY PATENT EXAMINER